Cambridge Assessment International Education

Cambridge IGCSE™

BIOLOGY **0610/13**

Paper 1 Multiple Choice (Core) **October/November 2023**

45 minutes

You must answer on the multiple choice answer sheet.

You will need: Multiple choice answer sheet
Soft clean eraser
Soft pencil (type B or HB is recommended)

INSTRUCTIONS

- There are **forty** questions on this paper. Answer **all** questions.
- For each question there are four possible answers **A**, **B**, **C** and **D**. Choose the **one** you consider correct and record your choice in soft pencil on the multiple choice answer sheet.
- Follow the instructions on the multiple choice answer sheet.
- Write in soft pencil.
- Write your name, centre number and candidate number on the multiple choice answer sheet in the spaces provided unless this has been done for you.
- Do **not** use correction fluid.
- Do **not** write on any bar codes.
- You may use a calculator.

INFORMATION

- The total mark for this paper is 40.
- Each correct answer will score one mark.
- Any rough working should be done on this question paper.

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1 What are characteristics of all living organisms?

View solution

A breathing, growth and movement

B egestion, nutrition and reproduction

C digestion, excretion and respiration

D reproduction, respiration and sensitivity

2 Using the binomial system, the name of a lion is *Panthera leo*.

View solution

Which statement is correct?

A The lion belongs to the kingdom *Panthera*.

B The lion belongs to the genus *Panthera*.

C The lion belongs to the species *Panthera*.

D The lion belongs to the genus *leo*.

3 Which feature would place organisms into the crustacean group of arthropods?

View solution

A eight legs

B six legs

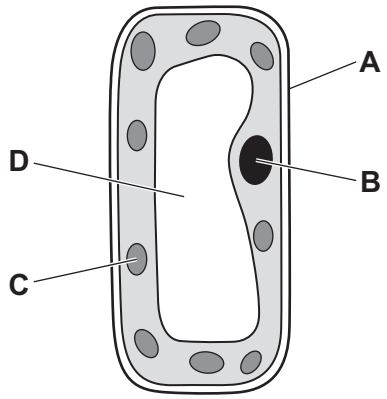
C two pairs of antennae

D usually have two pairs of wings

4 The diagram shows the structure of a palisade cell from a leaf.

View solution

Which structure contains chlorophyll?



5 A bacterial cell has a length of 40 mm when it is magnified by ×20 000.

View solution

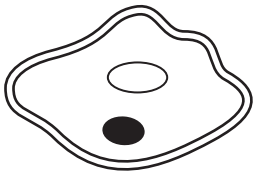
What is the actual length of the bacterial cell?

A 0.0002 mm **B** 0.002 mm **C** 0.02 mm **D** 0.2 mm

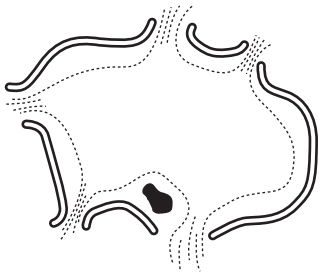
6 Which diagram shows the appearance of a plant cell after it is placed in pure water?

View solution

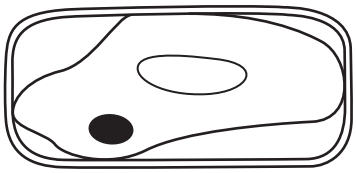
A



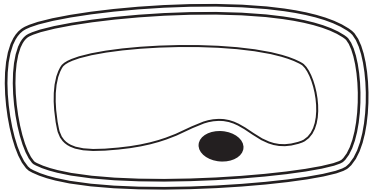
B



C



D



7 What would lead to a decrease in diffusion rate into a cell?

View solution

A greater concentration gradient

B higher temperature

C larger surface area of cell

D thicker cell wall

8 Which row shows the chemical elements contained in fats?

View solution

	carbon	hydrogen	nitrogen	oxygen
A	✓	✓	✗	✓
B	✓	✗	✓	✗
C	✗	✓	✓	✓
D	✓	✓	✗	✗

key

✓ = present

✗ = absent

9 Glycogen is a large molecule made from smaller molecules.

View solution

Which smaller molecules is glycogen made from?

A amino acids

B fatty acids

C glucose

D glycerol

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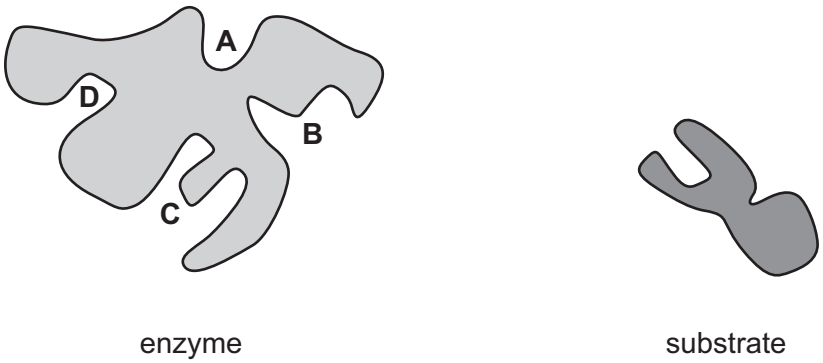
10 The diagrams represent an enzyme and its substrate.

View solution

Which part of the enzyme molecule is the active site for this substrate?



enzyme substrate

11 What is a use of the carbohydrates made by photosynthesis?

View solution

A to produce cellulose for energy stores

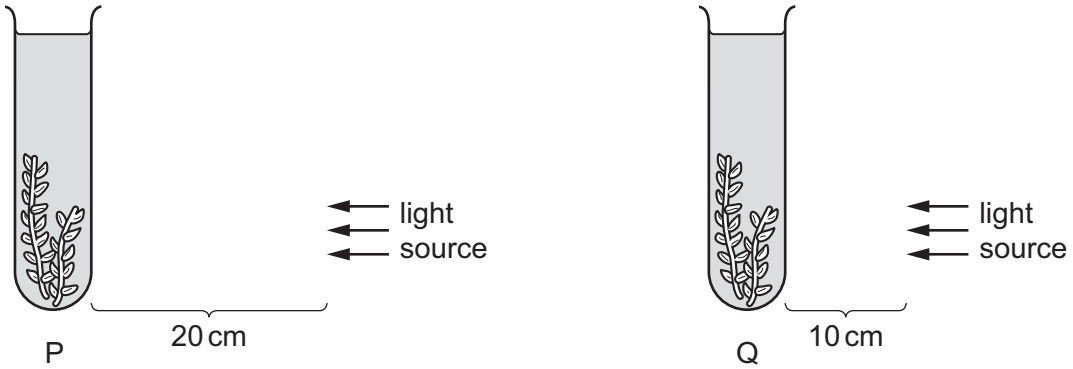
B to produce starch to build cell walls

C to produce starch for transport in the phloem

D to produce sucrose for transport in the phloem

12 The diagram shows an experiment investigating the effect of light intensity on an aquatic plant.

View solution



Photosynthesis occurred in both test-tube P and test-tube Q. Both test-tubes were kept at the same temperature. The number of bubbles produced in test-tube P was 12 bubbles per minute.

What is the most likely number of bubbles produced in one minute in test-tube Q?

A 0 **B** 3 **C** 12 **D** 48

13 Which human teeth are used for biting and cutting food?

View solution

A canines and molars

B incisors and canines

C molars and premolars

D premolars and incisors

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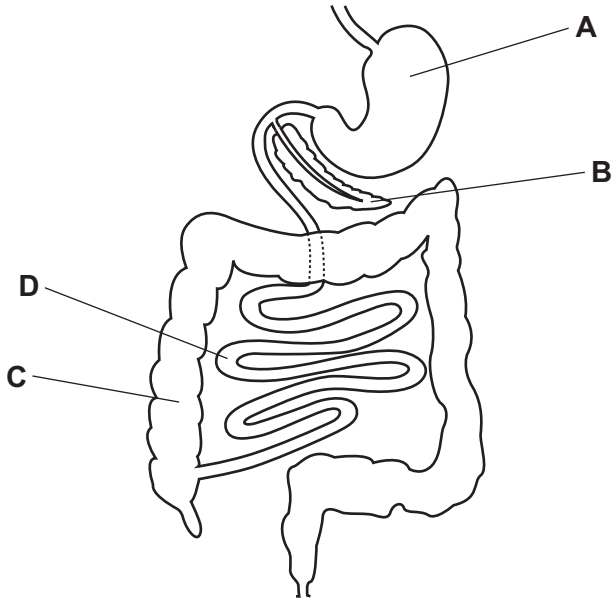
14 The diagram shows part of the human digestive system.

View solution

Which organ produces hydrochloric acid?



15 Which part of a balanced diet is missing if a person develops rickets?

View solution

A carbohydrates

B iron

C vitamin C

D vitamin D

16 By which process is water vapour lost from a leaf?

View solution

A active transport

B diffusion

C osmosis

D photosynthesis

17 The pathway taken by water through a plant is shown.

View solution

root hair cells → root cortex cells → Z → mesophyll cells

Which part of the pathway is Z?

A palisade cells

B phloem

C stomata

D xylem

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18 Which statement about the human circulatory system is correct?

View solution

A a system of blood vessels with the arteries returning blood to the heart

B a system of blood vessels with a pump and valves to ensure one-way flow of blood

C blood flows away from the heart into the vena cava

D blood flows into the lungs from the pulmonary vein

19 What are features of arteries?

View solution

1 narrow lumen

2 thick muscular wall

3 walls made of a single layer of cells

4 wide lumen

A 1 and 2 **B** 1 and 3 **C** 2 and 4 **D** 3 and 4

20 What are disease-causing organisms?

View solution

A antibodies

B pathogens

C phagocytes

D vaccines

21 Which row shows the composition of expired air from a healthy person?

View solution

	carbon dioxide %	oxygen %	water vapour
A	0.04	21	saturated
B	0.04	16	variable
C	4	21	variable
D	4	16	saturated

22 What is the path of carbon dioxide as it leaves the lungs?

View solution

A alveolus → bronchiole → bronchus → trachea

B alveolus → bronchus → bronchiole → trachea

C trachea → bronchiole → bronchus → alveolus

D trachea → bronchus → bronchiole → alveolus

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23 Which statement about anaerobic respiration is correct?

A Anaerobic respiration requires oxygen and releases less energy per glucose molecule than aerobic respiration.

B Anaerobic respiration requires oxygen and releases more energy per glucose molecule than aerobic respiration.

C Anaerobic respiration does **not** require oxygen and releases less energy per glucose molecule than aerobic respiration.

D Anaerobic respiration does **not** require oxygen and releases more energy per glucose molecule than aerobic respiration.

View solution

24 What is described as a ball of cells that implants into the lining of the uterus?

View solution

A acrosome

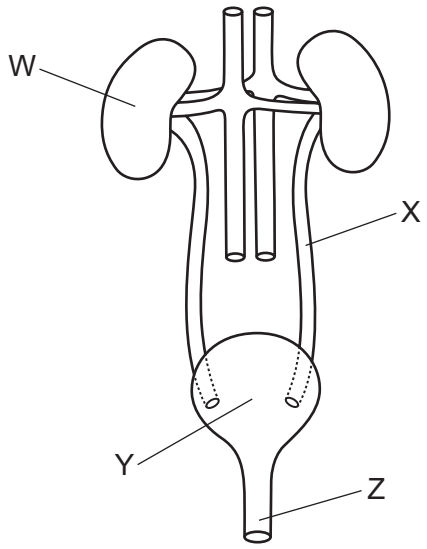
B embryo

C fetus

D zygote

25 The diagram shows parts of the body involved in excretion in humans.

View solution



What are the labelled parts?

	W	X	Y	Z
A	bladder	ureter	kidney	urethra
B	kidney	ureter	bladder	urethra
C	bladder	urethra	kidney	ureter
D	kidney	urethra	bladder	ureter

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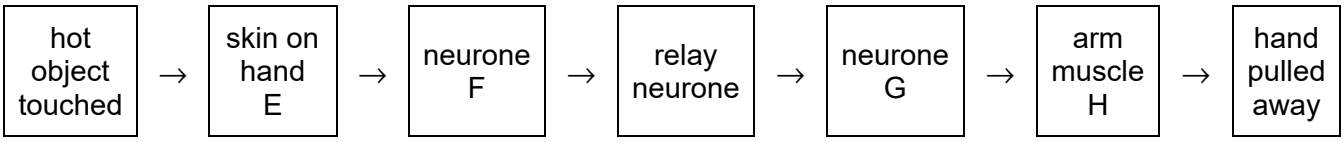
26 The diagram shows a reflex action when a person touches a hot object and pulls their hand away.



Which letter correctly identifies a structure?

View solution

A E is called the effector.

B F is called the motor neurone.

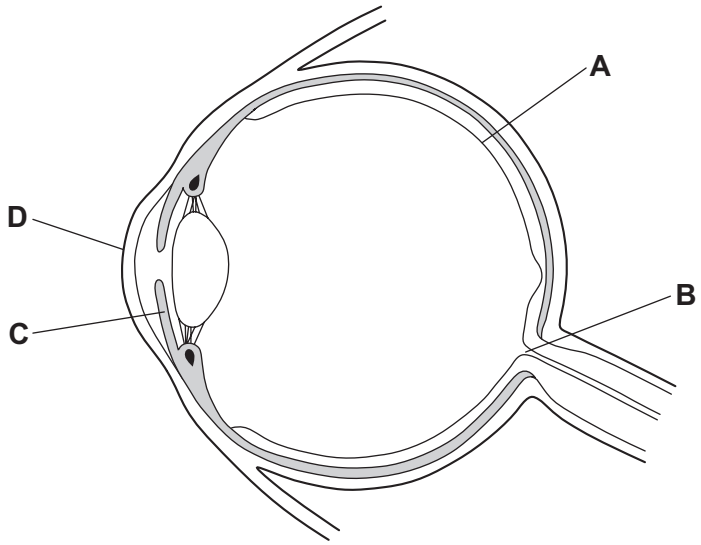
C G is called the motor neurone.

D H is called the receptor.

27 The diagram shows a section through a human eye.

View solution

Which structure changes shape in response to adrenaline?



28 What is an example of a population?

View solution

A all the animals and plants living in a lake

B all the different herbivores in a forest

C all the mahogany trees growing in a forest

D all the species of animals in Africa

29 Which statement about antibiotics is correct?

View solution

A Antibiotics are drugs.

B Antibiotics are produced by white blood cells.

C Antibiotics can become resistant to bacteria.

D Antibiotics kill viruses.

30 A pea plant with the genotype YY is crossed with a pea plant with the genotype yy.

View solution

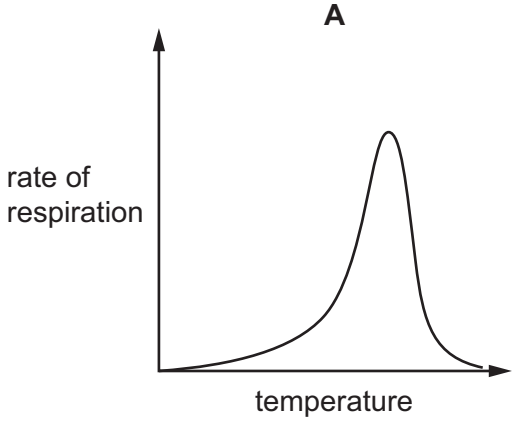
What are the possible genotypes of the offspring?

A YY and yy **B** all Yy **C** Yy and yy **D** all YY

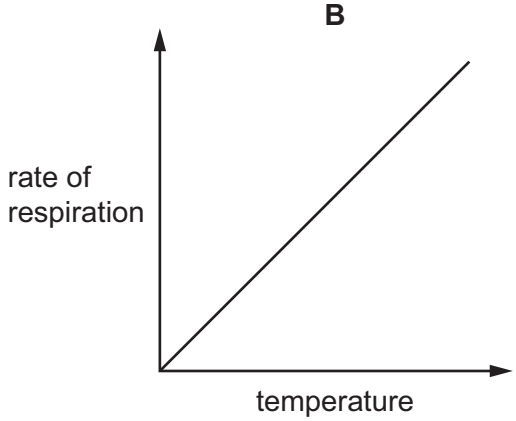
31 Which graph shows the effect of temperature on the rate of respiration in yeast?

View solution

A



B



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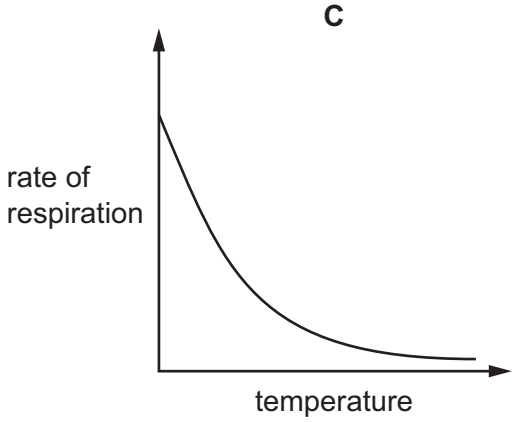
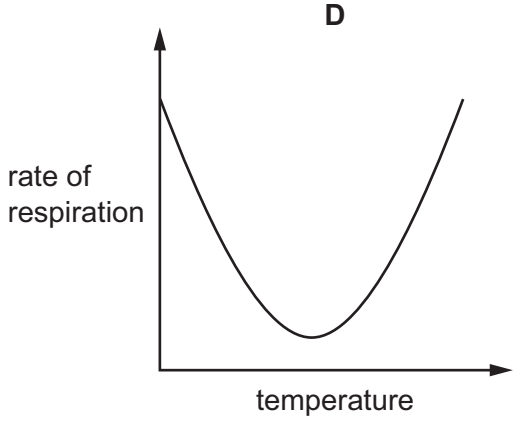


D



32 What is the correct description of asexual reproduction?

View solution

A Genetically different offspring are produced from one parent.

B Genetically different offspring are produced from two parents.

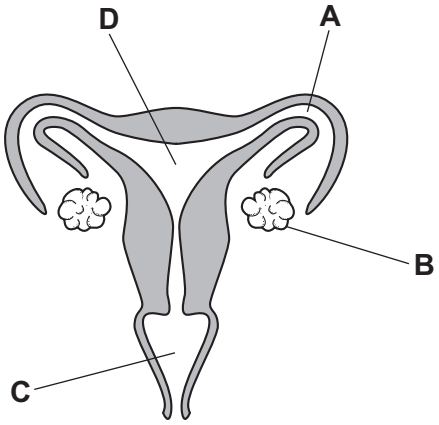
C Genetically identical offspring are produced from one parent.

D Genetically identical offspring are produced from two parents.

33 The diagram shows a human female's reproductive organs.

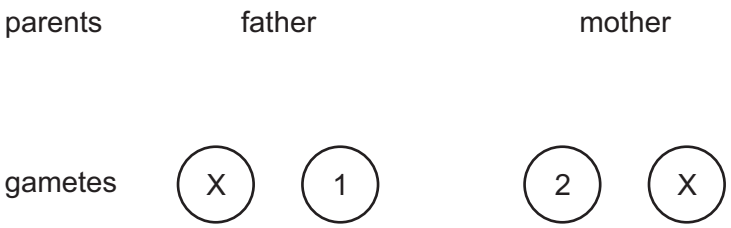
View solution

Where does fertilisation usually occur?



34 The diagram shows part of a genetic diagram for the inheritance of sex in humans. The sex chromosomes in two gametes are shown.

View solution



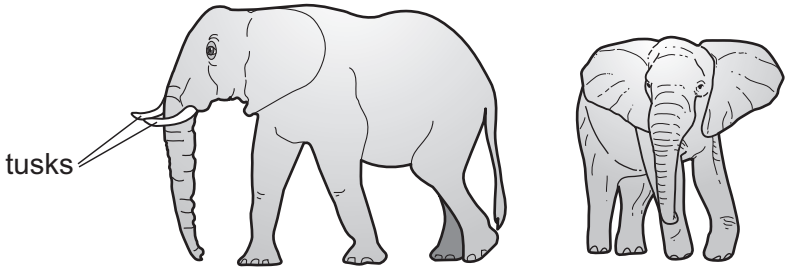
What are the sex chromosomes in gametes 1 and 2?

	gamete 1	gamete 2
A	X	Y
B	X	X
C	Y	Y
D	Y	X

35 Tusks are modified teeth.

In one part of the world, most elephants used to be born with tusks. Over the last 50 years, more female elephants have been born without tusks. These elephants are giving birth to offspring that also do **not** have tusks.

View solution



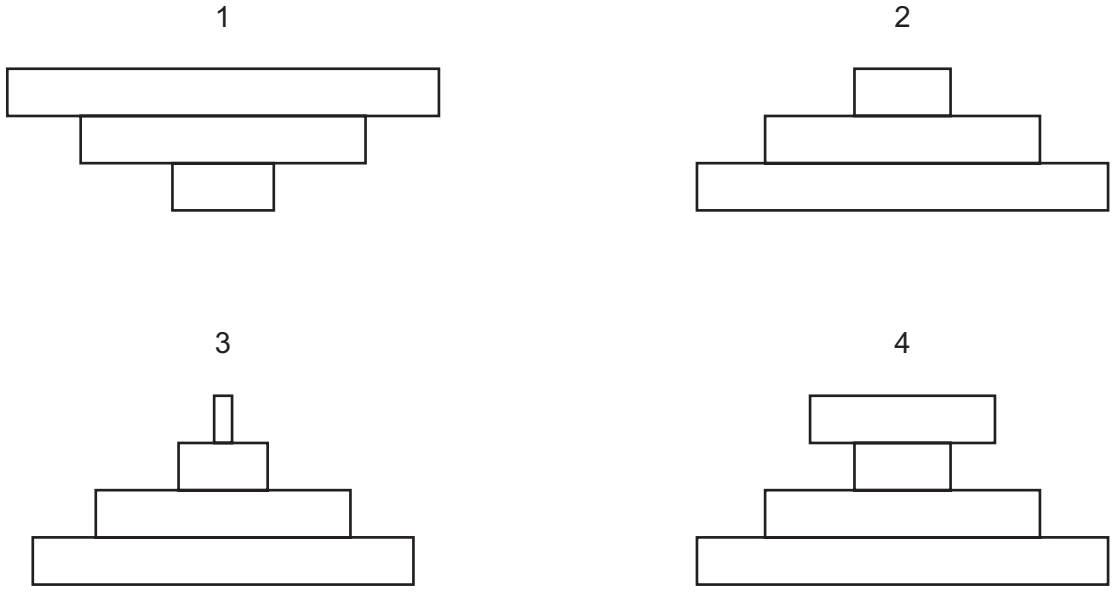
Which types of variation can be illustrated by this example?

	continuous	discontinuous	genetic
A	✓	✗	✗
B	✗	✓	✓
C	✓	✗	✓
D	✗	✓	✗

key
✓ = yes
✗ = no

36 The diagrams show pyramids of numbers and biomass.

View solution



Which pyramids could be pyramids of biomass?

A 1 and 2 **B** 1 and 4 **C** 2 and 3 **D** 3 and 4

37 Which process transfers energy between the first and second trophic levels of a food chain?

View solution

A egestion

B ingestion

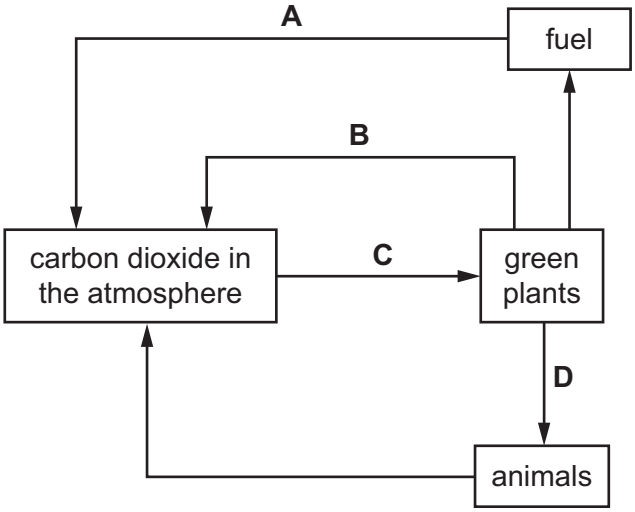
C photosynthesis

D respiration

38 The diagram shows part of the carbon cycle.

View solution

Which arrow represents respiration?



39 Why are bacteria useful in biotechnology and genetic modification?

View solution

A They can manufacture complex molecules.

B They reproduce slowly.

C They have a nucleus.

D They are the same as plant cells.

40 What is a reason for inserting genes into bacterial cells?

View solution

A to confer resistance to herbicides

B to confer resistance to insect pests

C to improve their nutritional qualities

D to produce human proteins

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